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Claims:

1. Preamble structure for the synchronization of a receiver of a OFDM transmission system, wherein
- 10 - the structure comprises at least one first part (A-FIELD),
 - the time domain signal of the at least one first part (A-FIELD) being generated by IFFT transforming frequency domain sequences of 12 complex symbols mapped to a 64 point IFFT according to the following scheme:
- $$S_{-26,26} = \sqrt{2} * \{0, 0, 0, 0, S_1, 0, 0, 0, S_2, 0, 0, 0, S_3, 0, 0, 0, S_4, 0, 0, 0, S_5, 0, 0, 0, S_6, 0, 0, 0, S_7, 0, 0, 0, S_8, 0, 0, 0, S_9, 0, 0, 0, S_{10}, 0, 0, 0, S_{11}, 0, 0, 0, S_{12}, 0, 0, 0, 0\},$$
- 15 wherein the remaining valued are set to zero,
 and the frequency domain sequence S_A of the at least one first part (A-FIELD) is one of
- $S_1 \dots S_{12} = +A, +A, +A, +A, +A, -A, -A, +A, +A, -A, +A, -A$
 $S_1 \dots S_{12} = +A, +A, +A, +A, -A, -A, +A, +A, -A, +A, -A, +A$
- 20 $S_1 \dots S_{12} = +A, +B, -A, -B, -A, -B, -A, -B, -A, +B, +A, -B$
 $S_1 \dots S_{12} = +A, +B, -A, -B, +A, -B, +A, -B, +A, -B, -A, +B$
 $S_1 \dots S_{12} = +A, -B, -A, +B, -A, +B, -A, +B, -A, -B, +A, +B$
 $S_1 \dots S_{12} = +A, -B, -A, +B, +A, +B, +A, +B, +A, +B, -A, -B$
- or an order reversed modification thereof.
- 25
2. Preamble structure,
 characterized in that
 it comprises at least one second part (B-FIELD) and
 the frequency domain sequence of the at least one second part (B-FIELD) is
- 30 $S_B = (1+i), (-1-i), (1+i), (-1-i), (-1-i), (1+i), (-1-i), (-1-i), (1+i), (1+i), (1+i), (1+i).$

3. Preamble structure according to claim 2,
characterized in that
the at least one second part follows the at least one first part in the time domain.

5 4. OFDM transmitter,
designed for transmitting a synchronization preamble according to anyone of the
preceding claims in the BCCH channel of an OFDM system.

5. Method for the synchronization of a receiver of a OFDM transmission system,
10 wherein

- the structure comprises at least one first part (A-FIELD) in the time domain,
- the time domain signal of the at least one first part (A-FIELD) and the at least one
second part (B-FIELD) being generated by IFFT transforming frequency domain
sequences of 12 complex symbols mapped to a 64 point IFFT according to the
15 following scheme:

$$S_{-26,26} = \sqrt{2} * \{0,0,0,0,S1,0,0,0,S2,0,0,0,S3,0,0,0,S4,0,0,0,S5,0,0,0,S6,0,0,0, \\ S7,0,0,0,S8,0,0,0,S9,0,0,0,S10,0,0,0,S11,0,0,0,S12,0,0,0,0\},$$

wherein the remaining valued are set to zero, and

the frequency domain sequence S_A of the at least one first part (A-FIELD) is one of

20 $S1...S12 = +A, +A, +A, +A, +A, -A, -A, +A, +A, -A, +A, -A$

$$S1...S12 = +A, +A, +A, +A, -A, -A, +A, +A, -A, +A, -A, +A$$

$$S1...S12 = +A, +B, -A, -B, -A, -B, -A, -B, -A, +B, +A, -B$$

$$S1...S12 = +A, +B, -A, -B, +A, -B, +A, -B, +A, -B, -A, +B$$

$$S1...S12 = +A, -B, -A, +B, -A, +B, -A, +B, -A, -B, +A, +B$$

25 $S1...S12 = +A, -B, -A, +B, +A, +B, +A, +B, +A, +B, -A, -B$

or an order reversed modification thereof.

6. Method according to claim 5,

characterized in that

30 it comprises at least one second part (B-FIELD) and

the frequency domain sequence of the at least one second part (B-FIELD) is

$$S_B = (1+i), (-1-i), (1+i), (-1-i), (-1-i), (1+i), (-1-i), (-1-i), (1+i), (1+i), (1+i), \\ (1+i)$$

7. Method according to claim 6,
characterized in that

the at least one second part follows the at least one first part in the time domain.